REMARKS

Claims 1-5 and 7-28 are pending. Claim 6 has been canceled by the Second Preliminary Amendment filed January 20, 2005. Claims 1-5 and 7-27 stand rejected. Claims 1-3, 4, 9, 14, 17, and 24 have been amended. Claim 5 has been canceled. New Claim 29 has been added. Reconsideration and allowance of Claims 1-4 and 7-29 in view of the above amendments and following remarks are respectfully requested.

Claim 28

Applicants note that Claim 28 has not been rejected in the outstanding Examiner's Action and therefore is presumably allowed. If for some reason the Examiner has not examined Claim 28 in preparing the outstanding Examiner's Action, and finds it necessary to issue a rejection of Claim 28 in the next Examiner's Action, such rejection should not be made final in order to allow applicants an opportunity to address any rejection of Claim 28 substantively without necessitating the filing of an RCE.

Claims 2 and 3

Claim 2 and 3 are amended to add the term polymer.

The Rejection of Claims 1, 4, 7-9, 11-13, 14, 18, 21, and 22 under 35 U.S.C. §102(b)

Claims 1, 4, 7-9, 11-14, 18, 21, and 22 have been rejected under 35 U.S.C. §102(b) as being anticipated by EP 1 202 365, issued to Takeo Yamaguchi et al. (hereafter "the Takeo reference"). Withdrawal of the rejection is requested for the following reasons.

Claim 1 is directed to an electrolyte membrane. Claims 4, 7-9, and 11-13 depend from Claim 1.

Claim 14 is directed to a method for producing an electrolyte membrane. Claims 18, 21, and 22 depend from Claim 14.

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Claims 1 and 14 have both been amended to incorporate the feature recited in canceled Claim 5. Canceled Claim 5 recite that the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours.

According to the Examiner, the recitation of Claim 5 makes Claim 5 a product-by-process claim, and therefore, the feature of Claim 5 need not be given patentable weight. Applicants direct the Examiner's attention to M.P.E.P. 2173.05(p), titled "Claim Directed to Product-By-Process or Product and Process," which describes a product-by-process claim as a product claim that defines the claimed product in terms of the process by which it is made. *In re Luck*, 476 F.2d 650, 177 U.S.P.Q. 523 (CCPA 1973); *In re Pilkington*, 411 F.2d 1345, 162 U.S.P.Q. 145 (CCPA 1969); *In re Steppan*, 394 F.2d 1013, 156 U.S.P.Q. 143 (CCPA 1967). Applicants submit that the recitation "the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of the thermal treatment at 105°C for 8 hours" recited in canceled Claim 5 describes not the process by which the porous substrate is made but the properties of the porous substrate. Accordingly, as a product limitation the subject matter of canceled Claim 5 as added to Claims 1 and 14 by amendment must be given patentable weight.

The Takeo reference fails to disclose every element of the invention of Claims 1 and 14 as amended. As noted above, amended Claims 1 and 14 both require that the porous substrate of the claimed electrolyte membrane have a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours. The Takeo reference is directed to an electrolytic membrane for a fuel cell. In paragraph 1160, Takeo states that the membrane kept its ability to highly inhibit methanol permeation up to about 180°C. Nowhere does Takeo disclose an electrolyte membrane that has a heat resistant

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temperature of over 200°C. In addition, nowhere does Takeo disclose an electrolyte membrane having a thermal shrinkage ratio of ±1% or less in the case of thermal treatment at 105°C for 8 hours.

Because the Takeo reference fails to disclose every element of Claims 1 and 14 and Claims 4, 7-9, 11-13, 18, and 21-22 that depend therefrom, these claims are not anticipated by Takeo. Accordingly, withdrawal of the rejection is respectfully requested.

The Rejection of Claims 5, 8, 10, 24, 26, and 27 under 35 U.S.C. §102(b)/§103(a)

Claims 5, 8, 10, 24, 26, and 27 have been rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over the Takeo reference. Withdrawal of the rejection is requested for the following reasons.

Claim 5 has been canceled and therefore its rejection is moot. The features of cancelled Claim 5 have been added to independent Claims 1, 14, 17, and 24. Claims 8 and 10 depend from Claim 1. Therefore, Claims 8 and 10 are novel over Takeo for the same reasons Claim 1 (as described above) is novel over Takeo.

Claim 24 is directed to an electrolyte membrane for a fuel cell. Similar to Claim 1, amended Claim 24 recites that the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of the thermal treatment at 105°C for 8 hours. Claims 26 and 27 depend from Claim 24.

As discussed above with respect to the 102(b) rejection of Claims 1 and 14 over Takeo, the Takeo reference fails to teach an electrolyte membrane having a porous substrate with a heat resistant temperature of over 200°C and a thermal shrinkage ratio of ±1% or less with the thermal treatment at 105°C for 8 hours. Because the Takeo reference fails to disclose every element of Claim 24, Claim 24 and Claims 26 and 27 that depend from Claim 24 are novel over Takeo.

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Regarding the alternative rejection of Claims 5, 8, 10, 24, 26, and 27 under 35 U.S.C. § 103(a), the Examiner's Action dismiss the features of Claim 5 on the grounds that they are process limitations which are not to be given patentable weight in a product claim. As pointed out above, the features of Claim 5 are product features which must be given patentable weight. As pointed out above, the features of canceled Claim 5 have been incorporated into independent Claim 1 and 24 from which Claims 8, 10, 26, and 27 depend. Applicants respectfully traverse the rejection of Claims 8, 10, 24, 26, and 27 on the grounds that the Examiner's Action provides no basis for a *prima facie* case of obviousness against Claims 1, 14, 17, and 24 that recite an electrolyte membrane that includes a porous substrate that "has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 100°C for 8 hours." Accordingly, the obviousness rejection of Claims 8, 10, 26, and 27, which depend from independent Claim 1 or independent Claim 24 which now recite the nonobvious features of Claim 5, should be withdrawn.

The Rejection of Claims 2, 3, and 15 Under 35 U.S.C. § 103(a)

Claims 2, 3, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeo. Claims 2 and 3 depend from independent Claim 1. As explained above, independent Claim 1 as amended is novel and nonobvious over Takeo. In view of the dependency of Claims 2 and 3 from independent Claim 1, Claims 2 and 3 are novel and nonobvious over Takeo for the same reasons that independent Claim 1 is novel and nonobvious over Takeo.

Dependent Claim 15 depends from independent Claim 14. The novelty and nonobviousness of the subject matter of Claim 14 over Takeo has been discussed above. In view of the dependence of Claim 15 from Claim 14, Claim 15 is novel and nonobvious over Takeo for the same reasons that independent Claim 14 is novel and nonobvious over Takeo.

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For the foregoing reasons, applicants respectfully request withdrawal of the outstanding rejection of Claims 2, 3, and 15.

The Rejection of Claims 16, 17, 19, and 20 under 35 U.S.C. §103(a)

Claims 16, 17, 19, and 20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the Takeo reference in view of JP 05-031343, issued to Yamaguchi et al. Withdrawal of the rejection is requested for the following reasons.

Claims 16, 19 and 20 depend from Claim 14. Independent Claim 14 has been amended to recite that that the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours. The reasons why Claim 14 is novel and nonobviousness over Takeo are discussed above.

Claim 17 is directed to a method for producing an electrolyte membrane. Similar to Claim 14, Claim 17 has been amended to recite that the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours. The novelty and nonobviousness of a claim that recites a porous substrate that has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 100°C for 8 hours has been discussed above. For those reasons, independent Claim 17 is novel and nonobvious over Takeo.

The Yamaguchi reference discloses a separation membrane obtained by performing graft polymerization of a water-insoluble monomer on a polyethylene microporous membrane to substantially fill the pores of the microporous membrane with the graft polymer of the water-insoluble monomer.

As noted above, the Takeo reference does not disclose a porous substrate that has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours, as recited in Claims 16, 17, 19, and 20. The Yamaguchi

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reference does not cure the defects of the Takeo reference. Accordingly, as explained above, the Examiner's Action has not established a *prima facie* case of obviousness with respect to claims that recite a porous substrate that has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 100°C for 8 hours, as recited in Claims 16, 17, 19, and 20. Therefore, the outstanding rejection of Claims 16, 17, 19, and 20 over the Takeo reference and the Yamaguchi reference should be withdrawn.

The Rejection of Claims 20, 23, and 25 under 35 U.S.C. §103(a)

Claims 20, 23, and 25 have been rejected under 35 U.S.C. §103(a) as being unpatentable over the Takeo reference in view of the U.S. Patent No. 3,423,366, issued to Brunner et al. Withdrawal of the rejection is requested for the following reasons.

Claims 20 and 23 depend from Claim 14 and are directed to a method for producing an electrolyte membrane. Claim 25 depends from Claim 24 and is directed to an electrolyte membrane. As noted above, both independent Claims 14 and 24 have been amended to recite that the porous substrate has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours.

The Brunner reference is directed to a composition including a bis(hydroxyalkyl) or bis(hydrocarbyloxyalkyl) ester of an aromatic tetracarboxylic acid, an inert organic solvent, melamine, and an aromatic diamine. The composition provides a heat-curable resin useful as a coating, impregnating or adhesive agent.

As noted above, the Takeo reference fails to disclose porous substrate that has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 105°C for 8 hours, as recited in independent Claims 14 and 24. The Brunner reference does not cure the defect in the teaching of the Takeo reference. Accordingly, as explained above, the Examiner's Action has not established a *prima facie* case of obviousness for

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claims that recite a porous substrate that has a heat resistant temperature of 200°C or higher and a thermal shrinkage ratio of ±1% or less in case of thermal treatment at 100°C for 8 hours, as included in Claims 20, 23, and 25. Therefore, outstanding rejection of Claims 20, 23, and 25 over the Takeo reference and the Brunner reference should be withdrawn.

Claim 29

Claim 29 has been added. Claim 29 is directed to an electrolyte membrane of Claim 1. Claim 29 requires that the polyimide contains 3,3',4,4'-biphenyltetracarboxylic acid dianhydride as a tetracarboxylic acid component, and oxydianiline as a diamine component, respectively. Support for Claim 29 can be found at page 13, lines 9-12.

As discussed above, Claim 1 is novel and nonobvious in view of the teachings of the cited references. Claim 29 depends from Claim 1. Therefore, Claim 29 is novel and nonobvious for at least the reason that it depends from Claim 1. Allowance of Claim 29 is respectfully requested.

CONCLUSION

In view of the foregoing amendment and remarks, applicants respectfully request the allowance of Claims 1-4 and 7-29. If any issues remains that may be expeditiously addressed by a telephone interview, the Examiner is encourage to telephone Applicants' attorney at the number provided below.

Respectfully submitted,

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